Complete Summary

GUIDELINE TITLE

Allergy diagnostic testing: an updated practice parameter. Part 2.

BIBLIOGRAPHIC SOURCE(S)

Bernstein IL, Li JT, Bernstein DI, Hamilton R, Spector SL, Tan R, Sicherer S, Golden DB, Khan DA, Nicklas RA, Portnoy JM, Blessing-Moore J, Cox L, Lang DM, Oppenheimer J, Randolph CC, Schuller DE, Tilles SA, Wallace DV, Levetin E, Weber R, American Academy of Allergy, Asthma and Immunology, American College of Allergy, Asthma and Immunology. Allergy diagnostic testing: an updated practice parameter. Part 2. Ann Allergy Asthma Immunol 2008 Mar;100(3 Suppl 3):S66-S121.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Joint Council of Allergy, Asthma and Immunology. Practice parameters for allergy diagnostic testing. Ann Allergy Asthma Immunol 1995 Dec;75(6 Pt 2):543-625. [316 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Inhalant allergy
- Food allergy
- Stinging insect (venom) allergy
- Drug allergy

- Allergic contact dermatitis

GUIDELINE CATEGORY

Diagnosis
Evaluation
Screening

CLINICAL SPECIALTY

Allergy and Immunology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To serve as a reference source for current utility and validity of allergy diagnostic tests
- To develop a reliable reference resource for selecting appropriate diagnostic tests
- To provide guidelines and support for the practicing physician on how diagnostic tests should be used in an appropriate and cost-effective manner
- To improve the quality of care of patients by facilitating prompt and accurate diagnosis of their hypersensitivity disorders

TARGET POPULATION

Children and adults with inhalant, food, venom, or drug allergies, or allergic contact dermatitis

INTERVENTIONS AND PRACTICES CONSIDERED

1. Selecting laboratory diagnostic tests for inhalant, food, insect venom, drug, and contact allergies
    - Test and laboratory ordering form
    - Preparing an efficient panel of test reagents
    - Skin prick/puncture test
    - Selecting appropriate allergens and minimizing the number of antigens
2. Assessment of inhalant, food, insect venom, drug, and contact allergies

MAJOR OUTCOMES CONSIDERED

Clinical utility and validity of diagnostic tests (i.e., sensitivity, specificity, and positive and negative predictive indices)

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The draft was based on a review of the medical literature using a variety of search engines, such as PubMed.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus
Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Category of Evidence

Ia Evidence from meta-analysis of randomized controlled trials

Ib Evidence from at least 1 randomized controlled trial

IIa Evidence from at least 1 controlled study without randomization

IIb Evidence from at least 1 other type of quasi-experimental study

III Evidence from nonexperimental descriptive studies, such as comparative studies, correlation studies, and case-control studies

IV Evidence from expert committee reports, the opinion or clinical experience of respected authorities, or both

LB Evidence from laboratory-based studies

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Published clinical and basic studies were rated by categories of evidence and used to establish the strength of recommendations (see "Rating Scheme for the Strength of the Evidence" and "Rating Scheme for the Strength of the Recommendations" fields).

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The major emphasis of this updated version of Practice Parameters for Allergy Diagnostic Testing is focused on how technological refinements and their validations during the past decade are being incorporated into the diagnostic armamentarium of allergists/clinical immunologists and how their optimal use enables confirmation of human clinical sensitivity.

The impetus for Practice Parameters for Allergy Diagnostic Testing originally stemmed from a consensus conference sponsored by the National Institute of Allergy and Infectious Diseases and published as a supplement to the *Journal of Allergy and Clinical Immunology* in September 1988. One of the major conclusions of that workshop was that periodic reassessment of diagnostic techniques should be mandatory, and in keeping with that recommendation, the 1995 Practice Parameters for Allergy Diagnostic Tests further reviewed and considered new developments up to that time. In the 13-year interval since that publication, there has been an exponential progression of basic and translational immunologic research, some of which produced novel and practical diagnostic possibilities. Obviously, these advancements necessitated an overhaul of the 1995 Allergy Diagnostic Parameter commensurate with the extensive database currently available. The ultimate goals were to formulate recommendations based on evidence-based literature and to achieve balanced use of classic and new diagnostic methods.

The working draft of the Parameter on Allergy Diagnostic Tests update was based on an outline jointly conceived by the co-chairmen of the Parameter Workgroup and realized by the work group.

Many of the diagnostic recommendations were extracted or in some cases quoted verbatim from each of these previously published guidelines. Disease Management of Drug Hypersensitivity: A Practice Parameter; Allergen Immunotherapy: A Practice Parameter; Stinging Insect Hypersensitivity: A Practice Parameter; Food Allergy: A Practice Parameter; and Contact Dermatitis: A Practice Parameter.

This document represents an evidence-based, broadly accepted consensus opinion.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of Recommendations

A Directly based on category I evidence

B Directly based on category II evidence or extrapolated from category I evidence

C Directly based on category III evidence or extrapolated from category I or II evidence

D Directly based on category IV evidence or extrapolated from category I, II, or III evidence

E Directly based on category LB evidence

F Based on consensus of the Joint Task Force on Practice Parameters

NR Not rated

COST ANALYSIS

Published cost analyses were reviewed in the preparation of this guideline.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The initial draft was reviewed by all members of the Joint Task Force and subsequently by the American Academy of Allergy, Asthma and Immunology (AAAAI), the American College of Allergy, Asthma and Immunology (ACAAI), and the Joint Council of Allergy, Asthma and Immunology and a number of experts on in vivo and in vitro diagnostic immunology selected by the supporting organizations. Comments were also solicited from the general membership of these societies via their Web sites. The peer review process and general format of the Practice Parameter are consistent with recommendations of the American College of Medical Quality, which defines practice guidelines.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Guideline recommendations are presented in the form of summary statements. (**Note**: statements are numbered to match the numbering in the original guideline document and therefore do not begin at 1.) After each statement is a letter in parentheses that indicates the strength of the recommendation. Grades of recommendations (A-D) and categories of evidence (Ia, Ib, IIa, IIb, III, IV, LB [evidence from laboratory-based studies], and NR [Not rated]) are defined at the end of the "Major Recommendations" field.

Summary Statements

Allergens

Introduction and General Considerations

155. Although North American inhalant allergens are botanically and ecologically diverse, several expert committees consisting of members with botanic and mycologic expertise have compiled and selected 36 key allergens in North America, based on Thommen's postulates. (**D**)
156. For individual patients, the choice of test allergens is guided by the history and physical examination and the physician's knowledge, training, and experience. (**B**)

The Skin Testing Form

157. A well-designed skin test and laboratory ordering form should provide useful information to the ordering physician, his/her staff, health care providers, and other physicians who may be consulted in the future. (**B**)

Specific Allergen Types

Pollens

158. The best indicators in the selection of appropriate pollens for clinical use are extensive prevalence in the air and concurrent allergy symptoms during annually recurrent seasons when such pollens are expected to be present in the ambient air. (**B**)

Fungi

159. The clinical significance of a single fungus test reagent may be difficult to ascertain because of important confounders, such as sampling method, culture conditions, nonculturable species, allergenic differences between spores, and hyphae and preferential ecologic niches. (**A**)
160. For clinical purposes, molds are often characterized as outdoor (*Alternaria* and *Cladosporium* species), indoor (*Aspergillus* and *Penicillium* species), or both (*Alternaria*, *Aspergillus*, and *Penicillium* species). (**B**)

Insect and Acarid Allergens

161. Five *Hymenoptera* venom extracts are available for evaluation of anaphylactic reactions to honeybee, yellow jacket, yellow hornet, white faced hornet, and *Polistes* wasp. A whole-body extract is the only currently available diagnostic reagent for fire ant sting allergy. (**A**)
162. Major inhalant acarid and insect allergens include several species of house dust mite and cockroach. (**A**)

Epidermals

163. Animal clinical sensitivity is most often associated with domestic pets (cats, dogs, birds) and laboratory animals (rodents, rabbits). Specific testing is guided by history of appropriate animal exposure. (**A**)

Foods

164. Selection of food tests for immunoglobulin E (IgE)-mediated clinical sensitivity is usually tailored to the patient's temporal history, which may be supplemented by a food diary. (**A**)

Antibiotics, Other Drugs, and Chemicals

165. Although commercial skin tests for drugs, biologics, and chemicals are not available, specialized medical centers prepare and use such tests under appropriate clinical situations. The validity of such tests is adjudged on a case by case basis. (**C**)

Occupational Allergens

166. More than 300 low- and high-molecular-weight occupational allergens have been identified. Test reagents for these agents are generally available in specialized occupational allergy centers. (**A**)

Miscellaneous Plant Products

167. A variety of plant or plant-derived proteins or glycoproteins may be associated with systemic allergic symptoms. (**A**)

Contactant Allergens

168. Chemicals, plant resins, and lipid constituents are the chief causes of allergic contact dermatitis (ACD), which requires patch testing for confirmation. (**A**)

General Principles of Cross-Reactivity of Plant-Derived Allergens

169. As previously emphasized, knowledge of specific patterns of cross-reactivity among tree, grass, and weed pollens is essential in preparing an efficient panel of test reagents. (**A**)
170. Although cross-reactivity among related pollen families can usually be ascribed to specific epitopic determinants, more diffuse cross-reactivity due to plant profilins and cross-reactive carbohydrate determinants may also be present. (**A**)
171. Cross-reactivity data on fungi are extremely sparse. **(C)**

Assessment of Inhalant Allergy

172. The skin prick/puncture test is superior to intracutaneous testing for predicting nasal allergic symptoms triggered by exposure to pollen. (**B**)
173. A skin prick/puncture test is superior to intracutaneous testing for predicting allergic rhinitis and allergic asthma triggered by cat allergen exposure. (**B**)
174. The skin prick/puncture can be used to rule out allergic rhinitis and allergic asthma triggered by cat allergen exposure. (**B**)
175. Knowledge of allergen cross-reactivity and local aerobiology is important in selecting appropriate allergens and in minimizing the number of allergens required for skin and specific IgE tests. (**D**)

176. In general, skin prick/puncture testing is more sensitive for identifying sensitization to inhalant allergens and confirming clinical allergy. However, specific IgE assays with defined quantifiable threshold levels can also predict positive respiratory responses after allergen exposure. (**B**)
177. Demonstration of sensitization to an occupational agent by specific IgE and/or skin testing alone is insufficient to establish a diagnosis of occupational asthma (OA). (**B**)
178. Skin prick testing with certain well-characterized occupational protein allergens possesses adequate sensitivity such that a negative skin test result (<3-mm wheal diameter) can be used to rule out clinical allergy. (**B**)
179. Test performance characteristics of specific IgE assays and skin testing for detection of chemical IgE-mediated sensitization must undergo validation and reproducibility in controlled studies using standardized antigens and assay protocols before these can be considered reliable for routine evaluation of workers suspected of OA. (**B**)
180. In patients undergoing evaluation for suspected work-related natural rubber latex (NRL) allergy, a positive skin prick test result with a NRL extract (if available) is preferred to demonstration of elevated specific IgE with a U.S. Food and Drug Administration (FDA)-cleared assay due to higher sensitivity of the former. Current IgE-mediated allergy and asthma caused by NRL allergens is highly unlikely in the presence of a negative skin prick test result with a reliable crude NRL allergen extract. Elevated in vitro specific IgE levels can be used to confirm NRL allergy, but a negative result does not exclude NRL allergen sensitization. (**B**)

Assessment of Food Allergy

181. The primary tools available to evaluate patients' adverse reactions to foods include history (including diet records), physical examination, prick/puncture skin tests, serum tests for food specific IgE antibodies, trial elimination diets, and oral food challenges. (**B**)
182. A detailed dietary history, at times augmented with written diet records, is necessary to determine the likelihood that food is causing the disorder, identify the specific food, and determine the potential immunopathophysiology. (**D**)
183. With regard to evaluations for IgE antibody–associated food allergies, tests for food specific IgE antibody include percutaneous skin tests (prick/puncture tests) and serum assays. In general, these tests are highly sensitive (generally >85%) but only modestly specific (approximately 40% to 80%) and therefore are well suited for use when suspicion of a particular food or foods is high. They are not effective for indiscriminate screening (e.g., using panels of tests without consideration of likely causes) and therefore generally should not be used for that purpose. (**B**)
184. Intracutaneous (intradermal) skin tests for foods are potentially dangerous, are overly sensitive, increase the chance of a false-positive test result, and are not recommended. (**D**)
185. Based on studies in infants and children, increasingly higher concentrations of food specific IgE antibodies (reflected by increasingly larger percutaneous skin test size and/or higher concentrations of food specific serum IgE antibody) correlate with an increasing risk for a clinical reaction. (**B**)

186. A trial elimination diet may be helpful to determine if a disorder with frequent or chronic symptoms is responsive to dietary manipulation. (**D**)
187. Graded oral food challenge is a useful means to diagnose an adverse reaction to food. (**B**)
188. A number of additional diagnostic tests are under investigation, including atopy patch tests (APTs) and tests for IgE binding to specific epitopes. (**B**)
189. The rational selection, application, and interpretation of tests for food specific IgE antibodies require consideration of the epidemiology and underlying immunopathophysiology of the disorder under investigation, estimation of prior probability that a disorder or reaction is attributable to particular foods, and an understanding of the test utility and limitations. (**D**)

Assessment of Stinging Insect Allergy

Clinical Indications and Utility

190. Diagnostic skin and/or specific IgE tests are used to confirm clinical sensitivity to venoms in a patient with a history of a prior systemic reaction. (**B**)
191. Although diagnostic tests identify species specificity of venom sensitization, they do not reliably predict severity of the sting reaction. (**B**)

Diagnostic Reagents for Hymenoptera and Fire Ants

192. Standardized honeybee, *Polistes*, and *Vespula* antigens are commercially available as skin test reagents. (**A**)
193. The skin test reagent available for evaluation of imported fire sting allergy is a nonstandardized whole-body extract. (**C**)
194. In the case of a history of anaphylaxis to *Hymenoptera* venoms, intracutaneous skin tests are generally performed to 5 of the available venoms in a dose response protocol (up to 1 micrograms/mL [weight/volume]) when preliminary prick/puncture test results are negative. (**B**)
195. The FDA-cleared specific IgE assays have comparable specificity but decreased sensitivity compared with venom skin tests. (**B**)

Performance Characteristics of Insect Venom Tests (Prick, Intracutaneous, Specific IgE

196. Paradoxically, as many as 16% of insect-allergic patients with negative venom skin test results have positive results on currently available specific IgE in vitro tests. (**B**)
197. A small percentage of patients (1%) with negative results to both skin and in vitro tests may experience anaphylaxis after a field sting. (**B**)
198. A skin test refractory period lasting up to 6 weeks after a venom sting has been demonstrated by recent data. (**B**)

Complementary Skin and Specific IgE Testing

199. Because of the predictive inconsistencies of both skin and serum specific IgE tests, patients with a convincing history of venom-induced systemic reactions should be evaluated by both methods. (**D**)

Cross-Allergenicity

200. Cross-allergenicity among insect venoms is (1) extensive among vespid venoms, (2) considerable between vespids and *Polistes*, (3) infrequent between bees and vespids, and (4) very limited between yellow jacket and imported fire ants. (**B**)

Number and Frequency of Tests

201. If *Hymenoptera* venom sensitivity is suspected, initial prick/puncture tests followed by serial endpoint titration with intracutaneous tests may be required. (**B**)
202. Venom skin test may be repeated once or twice at 3- to 6-month intervals to confirm the diagnosis in a patient who initially had negative test results. (**D**)

Challenge Testing

203. When the diagnosis is highly suspected but not proved by skin and specific IgE tests, supervised live insect challenge sting may confirm clinical sensitivity. Nevertheless, most patients with suspected venom allergy do not require live stings. (**D**)

Assessment of Drug Allergy

204. Evaluation of drug-specific IgE antibodies induced by many high-molecular-weight and several low-molecular-weight agents is often highly useful for confirming the diagnosis and prediction of future IgE-mediated reactions, such as anaphylaxis and urticaria. (**B**)
205. Neither immediate skin nor tests for specific IgE antibodies are diagnostic of cytotoxic, immune complex, or cell-mediated drug-induced allergic reactions. (**B**)
206. The availability of specific laboratory tests for non–IgE-mediated drug allergies is limited. (**C**)
207. Atopy patch tests, lymphocyte proliferation tests, and basophil activation tests are additional diagnostic tests for drug allergy. Further studies are required to confirm their clinical utility in the evaluation of drug allergic patients. (**B)**
208. A graded challenge (test dose) is a procedure to determine if a drug is safe to administer and is intended for patients who are unlikely to be allergic to the given drug. In contrast to desensitization, a graded challenge does not modify the immune response to a drug. (**B**)
209. Atopy patch tests, lymphocyte proliferation tests, and basophil activation tests are additional diagnostic tests for drug allergy. Further studies are required to confirm their clinical utility in the evaluation of drug allergic patients. (**B**)

Penicillin

210. Penicillin skin testing is the most reliable method for evaluating IgE-mediated penicillin allergy provided that the necessary reagents are available. When performed with both major and minor determinants, the negative predictive value of penicillin skin testing for immediate reactions approaches 100%, whereas the positive predictive value is between 40% and 100%. (**B**)
211. Skin testing with penicilloyl-polylysine and penicillin G appears to have adequate negative predictive value in the evaluation of penicillin allergy. (**C**)
212. Penicillin skin test–negative patients (as determined by testing with major and minor determinants) may receive penicillin, and depending on which skin test reagents are used and the reaction history, the first dose may need to be given via a test challenge with a lower dose under observation. (**D**)
213. In the absence of validated skin test reagents, the approach to patients with a history of penicillin allergy is similar to that of other antibiotics for which no validated in vivo or in vitro diagnostic tests are available. Therapeutic options include (1) prescribing an alternative antibiotic, (2) performing a graded challenge, and (3) performing penicillin desensitization. (**D**)
214. In patients who have reacted to semisynthetic penicillins, consideration should be given to skin test the implicated antibiotic and penicillin determinants. (**B**)

Other Antibiotics

215. There are no validated diagnostic tests of sufficient sensitivity for evaluation of IgE-mediated allergy to antibiotics other than penicillin. (**C**)
216. Skin testing with nonirritating concentrations of other antibiotics is not standardized. A negative skin test result does not rule out the possibility of an immediate-type allergy. A positive skin test result suggests the presence of drug-specific IgE antibodies, but the predictive value is unknown. (**C**)

Aspirin and Nonsteroidal Anti-inflammatory Drugs (NSAIDS)

217. A presumptive diagnosis of aspirin- exacerbated respiratory disease (AERD) can often be made by history; however, in some cases, aspirin provocation tests might be considered for a definitive diagnosis. (**B**)
218. Urticaria, angioedema, and anaphylactic reactions to nonsteroidal anti-inflammatory drugs (NSAIDs) are distinctly different drug reactions from AERD reactions. In contrast to AERD reactions, anaphylactic reactions to NSAIDs are usually drug specific, and patients typically tolerate other structurally dissimilar NSAIDs. (**B**)

Perioperative Anaphylaxis

219. Skin testing is a useful diagnostic tool in cases of perioperative anaphylaxis, and when skin testing is used to guide subsequent anesthetic agents, the risk of recurrent anaphylaxis to anesthesia is low. (**C**)

Chemotherapeutics

220. Skin testing is not helpful in cases of taxane-induced anaphylactoid reactions. (**C**)
221. Skin testing to carboplatin yields favorable predictive values. (**C**)
222. Skin testing with asparaginase before treatment is recommended but does not identify all patients at risk of reactions. (**C**)

Local Anesthetics

223. Skin testing for diagnosis of local anesthetic allergy is limited by false-positive reactions. The gold standard for establishing a diagnosis of local anesthetic allergy is the provocative challenge. (**C**)

Corticosteroids

224. The specificity and sensitivity of skin tests for systemic corticosteroid allergy are unknown, and cases of corticosteroid allergy with negative skin test results to the implicated corticosteroid have been reported. (**D**)

Additives and Preservatives

225. For most allergic reactions to additives, skin tests are of no diagnostic value, and placebo-controlled oral challenges are required. (**C**)

Assessment of Allergic Contact Dermatitis

226. Contact dermatitis (CD) is a common skin disorder seen by allergists and dermatologists and can present with a spectrum of morphologic cutaneous reactions. (**C**)
227. The initial approach to clinical diagnosis of CD is to distinguish between allergic contact dermatitis (ACD) and irritant contact dermatitis (ICD). (**C**)
228. The inflammatory lesions of CD may result from either ACD or ICD mechanisms. Factors that affect response to the contact agent include the agent itself, the patient, the type and degree of exposure, and the environment. (**A**)
229. Tissue reactions to contactants are attributable primarily to cellular immune mechanisms except for contact urticaria. (**A**)
230. Irritant contact dermatitis is usually the result of nonimmunologic, direct tissue reaction and must be clearly differentiated from ACD. (**A**)
231. The diagnosis of ACD is suspected from the clinical presentation of the rash, which then must be supported by a history of exposure to a putative agent and subsequently confirmed by patch testing whenever this is possible. (**C**)
232. The skin site of the dermatitis is important in the diagnosis of ACD because the area of predominant involvement and the regional distribution of the lesions often reflect the area of contact with the allergen. (**A**)
233. Epicutaneously applied patch tests are the standardized diagnostic procedures to confirm ACD. (**A**)
234. Patch tests are indicated in any patient with a chronic, pruritic, eczematous, or lichenified dermatitis if underlying or secondary ACD is suspected. (**C**)

235. Patch test results are affected by oral corticosteroids but not by antihistamines. (**A**)
236. Reading and interpretation of patch tests should conform to principles developed by the International Contact Dermatitis Research Group and the North American Contact Dermatitis Research Group. (**A**)
237. A 96-hour reading may be necessary because 30% of relevant allergens that are negative at the 48-hour reading become positive in 96 hours. (**A**)
238. Nonstandardized and customized patch testing is often required, depending on the patient's exposure history. (**C**)
239. A problem-oriented approach to diagnostic patch testing using evidence-based principles of likelihood ratios and posttest probability is more likely to confirm clinical ACD than a randomly selected patch test approach. (**B**)
240. Several in vitro procedures are being investigated for the diagnosis of ACD. (**A**)
241. The differential diagnosis for contact dermatitis is influenced by many factors, such as the clinical appearance of the lesions, distribution of the dermatitis, and associated systemic manifestations. (**B**)
242. Occupational contact dermatitis (OCD) is an inflammatory cutaneous disease caused or aggravated by workplace exposure. (**B**)
243. There are 7 generally acceptable criteria for establishing causation and aggravation of OCD. (**C**)
244. Among health care professionals, ACD may occur as part of the spectrum of immunoreactivity to NRL in latex gloves. (**A**)
245. Allergic contact dermatitis from exposure to plants is the result of specific cell-mediated hypersensitivity induced by previous contact with that family of plants. (**A**)
246. Contact dermatitis is commonly implicated after exposure to topical medications, including lanolin, para-aminobenzoic acid (PABA), caine derivatives, antihistamines, iodochlorhydroxyquin, NSAIDs, and corticosteroids. (**A**)
247. Allergic contact dermatitis due to topical corticosteroids may occur in up to 5% of patients with suspected CD. (**A**)
248. Simultaneous exposure to allergens and irritants may produce both additive and synergistic ACD responses due to their interaction. (**A**)
249. The role of detergents in hand dermatitis is a reflection of their ability to disrupt the skin barrier. (**A**)
250. Allergic contact dermatitis is a significant clinical problem in children. (**A**)

Category of Evidence

Ia Evidence from meta-analysis of randomized controlled trials

Ib Evidence from at least 1 randomized controlled trial

IIa Evidence from at least 1 controlled study without randomization

IIb Evidence from at least 1 other type of quasi-experimental study

III Evidence from nonexperimental descriptive studies, such as comparative studies, correlation studies, and case-control studies

IV Evidence from expert committee reports, the opinion or clinical experience of respected authorities, or both

LB Evidence from laboratory-based studies

Strength of Recommendations

A Directly based on category I evidence

B Directly based on category II evidence or extrapolated from category I evidence

C Directly based on category III evidence or extrapolated from category I or II evidence

D Directly based on category IV evidence or extrapolated from category I, II, or III evidence

E Directly based on category LB evidence

F Based on consensus of the Joint Task Force on Practice Parameters

NR Not rated

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Appropriate selection and utilization of allergy diagnostic testing
- Improved quality if care by facilitation of prompt and accurate diagnosis of hypersensitivity disorders

POTENTIAL HARMS

- False-negative and false-positive test results may occur with allergy testing.

- Although allergy skin testing is a very safe procedure, adverse events can occur. Large local reactions, both immediate and late, cause discomfort and occasionally mild, nonprogressive systemic reactions may be associated with the latter. Immediate systemic reactions are less common with prick/puncture tests than intracutaneous tests. Fatalities are rare.

CONTRAINDICATIONS

CONTRAINDICATIONS

Readministration of a drug via graded challenge is absolutely contraindicated if it caused a severe non–IgE-mediated reaction such as Stevens-Johnson syndrome, toxic epidermal necrolysis, or exfoliative dermatitis.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This is a complete and comprehensive document at the current time. The medical environment is a changing environment and not all recommendation will be appropriate for all patients. Because this document incorporated the efforts of many participants, no single individual, including those who served on the Joint Task Force, is authorized to provide an official American Academy of Allergy, Asthma and Immunology (AAAAI) or American College of Allergy, Asthma and Immunology (ACAAI) interpretation of these practice parameters. Any request for information about or an interpretation of these practice parameters by the AAAAI or ACAAI should be directed to the Executive Offices of the AAAAI, the ACAAI, and the Joint Council of Allergy, Asthma and Immunology. These parameters are not designed for use by pharmaceutical companies in drug promotion.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Bernstein IL, Li JT, Bernstein DI, Hamilton R, Spector SL, Tan R, Sicherer S, Golden DB, Khan DA, Nicklas RA, Portnoy JM, Blessing-Moore J, Cox L, Lang DM, Oppenheimer J, Randolph CC, Schuller DE, Tilles SA, Wallace DV, Levetin E, Weber R, American Academy of Allergy, Asthma and Immunology, American College of Allergy, Asthma and Immunology. Allergy diagnostic testing: an updated practice parameter. Part 2. Ann Allergy Asthma Immunol 2008 Mar;100(3 Suppl 3):S66-S121.

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1995 Dec (revised 2008 Mar)

GUIDELINE DEVELOPER(S)

American Academy of Allergy, Asthma and Immunology - Medical Specialty Society
American College of Allergy, Asthma and Immunology - Medical Specialty Society
Joint Council of Allergy, Asthma and Immunology - Medical Specialty Society

GUIDELINE DEVELOPER COMMENT

These parameters were developed by the Joint Task Force on Practice Parameters, representing the American Academy of Allergy, Asthma and Immunology, the American College of Allergy, Asthma and Immunology, and the Joint Council of Allergy, Asthma and Immunology.

SOURCE(S) OF FUNDING

Funded by the American Academy of Allergy, Asthma, and Immunology (AAAAI), the American College of Allergy, Asthma, and Immunology (ACAAI) and the Joint Council of Allergy, Asthma and Immunology (JCAAI).

GUIDELINE COMMITTEE

Joint Task Force on Practice Parameters

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Chief Editor: I. Leonard Bernstein, MD, Clinical Professor of Medicine and Environmental Health, University of Cincinnati College of Medicine, Cincinnati, Ohio

Parameter Workgroup: James T. Li, MD, PhD – *Co-Chairman*, Division of Allergic Diseases and Internal Medicine, Mayo Clinic, Rochester, Minnesota; I. Leonard Bernstein, MD – *Co-Chairman*, Clinical Professor of Medicine and Environmental Health, University of Cincinnati College of Medicine, Cincinnati, Ohio; David I. Bernstein, MD, Clinical Professor of Medicine and Environmental Health, University of Cincinnati College of Medicine, Cincinnati, Ohio; Robert Hamilton, PhD, D. ABMLI, Professor of Medicine and Pathology, Johns Hopkins University School of Medicine, Baltimore, Maryland; Sheldon L. Spector, MD, Clinical Professor of Medicine, UCLA School of Medicine, Los Angeles, California; Ricardo Tan, MD, California Allergy and Asthma Medical Group, Los Angeles, California; Scott Sicherer, MD, Associate Professor of Pediatrics, Jaffe Food Allergy Institute, Mount Sinai School of Medicine, New York, New York; David B.K. Golden, MD, Associate Professor of Medicine, Johns Hopkins University, Baltimore, MD; David A. Khan, MD, Associate Professor of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, Texas

Task Force Reviewers: Richard A. Nicklas, MD, Clinical Professor of Medicine, George Washington Medical Center, Washington, DC; Jay M. Portnoy, MD, Chief, Section of Allergy, Asthma & Immunology, The Children's Mercy Hospital, Professor of Pediatrics, University of Missouri-Kansas City School of Medicine, Kansas City, Missouri; Joann Blessing-Moore, MD, Clinical Associate Professor of Medicine and Pediatrics, Stanford University Medical Center, Department of Immunology, Palo Alto, California; Linda Cox, MD, Assistant Clinical Professor of Medicine, Nova Southeastern University College of Osteopathic Medicine, Davie, Florida, David M. Lang, MD, Head, Allergy/Immunology Section, Division of Medicine, Director, Allergy and Immunology Fellowship Training Program, Cleveland Clinic Foundation, Cleveland, Ohio; John Oppenheimer, MD, Department of Internal Medicine, New Jersey Medical School, Pulmonary and Allergy Associates, Morristown, New Jersey; Christopher C. Randolph, MD, Clinical Professor of Pediatrics, Allergy/Immunology Section, Yale University; Diane E. Schuller, MD, Professor of Pediatrics, Pennsylvania State University Milton S. Hershey Medical College, Hershey, Pennsylvania; Stephen A. Tilles, MD, Clinical Assistant Professor of Medicine, University of Washington School of Medicine, Redmond, Washington; Dana V. Wallace, MD, Assistant Clinical Professor, Nova Southeastern University, Davie, Florida

Consultants: Estelle Levetin, PhD, Professor of Biology and Chair, Faculty of Biological Science, University of Tulsa, Tulsa, Oklahoma; Richard Weber, MD, Professor of Medicine, National Jewish Medical & Research Center, Denver, CO, Professor of Medicine, University of Colorado Health Sciences Center, Aurora, Colorado

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Joint Council of Allergy, Asthma and Immunology. Practice parameters for allergy diagnostic testing. Ann Allergy Asthma Immunol 1995 Dec;75(6 Pt 2):543-625. [316 references]

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Joint Council of Allergy, Asthma, and Immunology (JCAAI) Web site.

Print copies: Available from JCAAI, 50 N. Brockway, Ste 3-3 Palatine, IL 60067.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on October 1, 1998. The information was verified by the guideline developer on December 15, 1998. This NGC summary was updated by ECRI Institute on May 22, 2009.

COPYRIGHT STATEMENT

DISCLAIMER

NGC DISCLAIMER

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at http://www.guideline.gov/about/inclusion.aspx .

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and

related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

Date Modified: 7/27/2009